

REMARKS

The present application was filed on December 17, 2001 with claims 1-25. In the present Office Action, the Examiner has: (i) rejected claims 2, 10 and 17 under 35 U.S.C. §112, second paragraph, as being indefinite; (ii) rejected claims 1-4, 6-11, 16-19 and 21-25 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application Publication No. US 2001/0033569 to Dally ((hereinafter “Dally”)); (iii) rejected claims 5 and 20 under 35 U.S.C. §103(a) as being unpatentable over Dally, in view of U.S. Patent No. 6,934,471 to Carvey et al. (hereinafter “Carvey”); (iv) rejected claim 12 under §103(a) as being unpatentable over Dally in view of a paper by S.Q. Zheng et al., entitled “A Systolic Architecture for Sorting an Arbitrary Number of Elements,” *Algorithms and Architectures for Parallel Processing, ICAPP 97, 3rd International Conference*, pp. 113-126 (Dec. 1997) (hereinafter “Zheng”); (v) rejected claim 14 under §103(a) as being unpatentable over Dally in view of a paper by J.D. Carpinelli et al., entitled “Applications of Edge-Coloring Algorithms to Routing in Parallel Computers,” *Proceedings of the Third International Conference on Supercomputing*, Vol. III, pp. 249-257 (May 1988) (hereinafter “Carpinelli”); and (vi) indicated that claims 13 and 15 are allowable.

In this response, claims 13 and 15 have been rewritten in independent form including all of the limitations of the base claim and any intervening claims, as suggested by the Examiner. Claims 8, 9 and 22 have been canceled without prejudice, and therefore the rejection of these is rendered moot. Furthermore, claims 1, 2, 10, 11, 14, 16, 17 and 23 have been amended. Amendments to claims 11 and 14 are made merely to provide proper dependency from claim 13, as necessitated by the cancellation of claim 9. These amendments were not made in view of the prior art. Independent claim 26 has also been added. Applicant respectfully requests reconsideration of the present application in view of the above amendments and the following remarks.

Claims 2, 10 and 17 stand rejected under §112, second paragraph, as being indefinite. Specifically, the Examiner contends that the term “substantially conflict-free manner” recited in the subject claims renders the claims indefinite (Office Action; page 2, paragraph 2). Applicant respectfully disagrees with this contention and asserts that use of the word “substantially” in a claim does not necessarily introduce fatal ambiguity into the claim. Rather, as stated in Applicant’s prior response, “words of degree are entirely appropriate ‘when serving reasonably to describe the claimed subject matter to those of skill in the field of invention, and to distinguish

the claimed subject matter from the prior art.” *Chemical Separation Technology Inc. v. United States*, 63 USPQ2d 11 1114, 1130 (Fed. Cl. 2002) (citing *Andrew Corp. v. Gabriel Electronics, Inc.*, 847 F.2d 819, 821 (Fed. Cir. 1988)). “[T]he term ‘substantially’ in patent claims gives rise to some definitional leeway . . . Patentees may use these terms to avoid unduly limiting the modified word. Applicants maintain their assertion that the present specification does not assign any special meaning to the term “substantially,” and, as such, the phrase “substantially” as used in the context of the subject claims simply means that the one or more data samples are routed in a manner which is as nearly conflict-free as possible.

Notwithstanding the above traversal however, claims 2, 10 and 17 have been amended by removing the term “substantially” recited therein. Accordingly, withdrawal of the §112 rejection of claims 2, 10 and 17 is respectfully solicited.

Claims 1-4, 6-11, 16-19 and 21-25 stand rejected under §102(e) as being anticipated by Dally. With regard to independent claims 1, 9, 16 and 23, the Examiner contends that Dally discloses all of the elements set forth therein. In response, claims 1, 9, 16 and 23 have been amended to incorporate certain patentable features recited in claims 13 and 15. For example, claims 1 and 16, as amended, further define the controller as including:

at least one processor operative to: (i) precompute one or more routing sequences, the routing sequences reducing a routing in the mesh architecture to a one-to-one routing within each of one or more time-slots associated with the node; (ii) reorder the one or more data samples within one or more source nodes in accordance with the precomputed routing sequences; (iii) route the one or more data samples from the one or more source nodes to one or more corresponding destination nodes through the mesh; (iv) reorder the one or more data samples within the destination nodes, whereby the data samples are transmitted during a correct time-slot; and (v) partition the one or more time-slots associated with the nodes into a plurality of segments, each of the segments including a same number of nodes, each of the nodes including a subset of the one or more time-slots such that the one or more time-slots are distributed across the plurality of segments; wherein the reordering of the data samples within one or more source nodes, the routing of the data samples from one or more source nodes to one or more destination nodes, and the reordering of the data samples within the destination nodes are performed substantially in parallel within each of the plurality of segments.

These features are set forth in claim 15, which the Examiner has indicated as being allowable. Likewise, claim 23, as amended, further defines the controller as including:

at least one processor operative to: precompute one or more routing sequences, the routing sequences reducing a routing in the distributed mesh architecture to a one-to-one routing within each of one or more time-slots associated with the node; reorder the one or more data samples within one or more source nodes in accordance with the precomputed routing sequences; route the one or more data samples from the one or more source nodes to one or more corresponding destination nodes through the mesh; route the data samples in a first dimension in parallel in accordance with the precomputed routing sequences to determine the corresponding destination nodes; route the data samples in a second dimension in parallel whereby the data samples are routed to intended nodes in the first dimension; route the data samples in the first dimension in parallel whereby each of the data samples are routed to the corresponding destination nodes; and reorder the one or more data samples within the destination nodes whereby the data samples are transmitted during a correct time-slot.

These features are set forth in claim 13, which the Examiner has indicated as being allowable.

For at least the reasons set forth above, Applicant submits that independent claims 1, 16 and 23 are patentable over the prior art of record. Accordingly, favorable reconsideration and allowance of claims 1, 16 and 23 are respectfully requested.

With regard to claims 2-4, 6 and 7, which depend from claim 1, claims 10 and 11, which depend from claim 13, claims 17-19 and 21, which depend from claim 16, and claims 24 and 25, which depend from claim 23, Applicant submits that these claims are also patentable over the prior art at least by virtue of their dependency from their respective base claims, which are believed to be patentable for at least the reasons set forth above. Moreover, one or more of these claims define additional patentable subject matter in their own right. Accordingly, favorable reconsideration and allowance of claims 2-4, 6, 7, 10, 11, 17-19, 21, 24 and 25 are respectfully requested.

Claims 5, 12, 14 and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over combinations of one or more of Dally, Carvey, Zheng, and Carpinelli. While Applicant disagrees with the Examiner's contentions that the subject claims are unpatentable over the cited prior art combinations, Applicant submits that claim 5, which depends from claim 1, claims 12 and 14, which depend from claim 13, and claim 20, which depends from claim 16, are patentable over the prior art at least by virtue of their dependency from their respective base claims, which are believed to be patentable for at least the reasons given above. Moreover, one or more of these claims define additional patentable subject matter in their own right. Accordingly, favorable reconsideration and allowance of claims 5, 12, 14 and 20 are respectfully solicited.

Claim 26, which is newly presented herein, is directed to a synchronous cross-connect switch which incorporates patentable features set forth in claim 13. Specifically, claim 26 recites a controller including:

at least one processor operative to: precompute one or more routing sequences, the routing sequences reducing a routing in the mesh architecture to a one-to-one routing within each of one or more time-slots associated with the node; reorder the one or more data samples within one or more source nodes in accordance with the precomputed routing sequences; route the one or more data samples from the one or more source nodes to one or more corresponding destination nodes through the mesh by routing the data samples in a first dimension in parallel in accordance with the precomputed routing sequences to determine the corresponding destination nodes, routing the data samples in a second dimension in parallel whereby the data samples are routed to intended nodes in the first dimension, and routing the data samples in the first dimension in parallel whereby each of the data samples are routed to the corresponding destination nodes; and reorder the one or more data samples within the destination nodes whereby the data samples are transmitted during a correct time-slot.

The prior art fails to teach or suggest at least these features of claim 26. Accordingly, favorable consideration and allowance of claim 26 are respectfully requested.

In view of the foregoing, Applicant believes that claims 1-7, 10-21 and 23-26 are in condition for allowance, and respectfully requests withdrawal of the §112, §102 and §103 rejections.

Respectfully submitted,



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